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EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1771

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/19/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/19/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/501,910

Applicant(s)

HWANG ET AL.

Examiner

Andrew T. Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2 and 4-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/8/2006 has been entered.

Claim Objections

2. Claims 6, 7, 11, 13 and 19 are objected to because of the following informalities:

Regarding claims 6 and 7, the phrase "the number of twists" should be deleted for clarification purposes (see claim 8).

Regarding claim 11, the units "g/M2" should read "g/m²" (see specification page 9, lines 22 and 23).

Regarding claim 13, the word "'fine" should read "fine."

Regarding claim 19, the word "denies" should read "deiner."

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4-5, 9-11, 13-15 and 17-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USPN 4,145,468 to Mizoguchi et al. (hereinafter referred to as Mizoguchi).

Regarding claims 2, 4-5, 9-11, 13-15 and 17-19, Mizoguchi discloses a composite sheet for artificial leather comprising: a non-woven fabric layer (1) made of ultra fine fibers; a woven or knitted fabric layer (2) constructed from a yarn made of ultra fine fibers having a fineness less than 3 denier; and polyurethane resin, wherein the ultra fine fibers of the non-woven fabric layer (1) and the ultra fine fibers of the woven or knitted fabric layer (2) are entangled with each other (see entire document including column 1, lines 6-13, column 2, lines 30-61, the paragraph bridging columns 6 and 7, column 8, lines 44-57, and column 10, lines 46-52).

Mizoguchi discloses that the ultra fine fibers of the woven or knitted fabric layer (2) may be less than 3 denier (column 8, lines 44-457) while the applicant claims that the ultra fine fibers of the woven or knitted fabric layer have a fineness of 0.01 to 0.3 denier. Therefore, it appears

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that Mizoguchi teaches the claimed denier with sufficient specificity. In the event that it is shown that Mizoguchi does not teach the claimed denier with sufficient specificity, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the denier of the ultra fine fibers, such as to 0.01 to 0.3 denier, because it is understood by one of ordinary skill in the art that the denier determines properties such stiffness and softness and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Mizoguchi discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (paragraph bridging columns 6 and 7) and that the woven or knitted fabric layer (2) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (see above). Therefore, Mizoguchi discloses that the fineness of the ultra fine fibers of the woven or knitted fabric layer (2) may be not more than the fineness of the ultra fine fibers of the nonwoven fabric layer (1).

Regarding claims 2, 14 and 18, Mizoguchi discloses that the ultra fine fibers on the surface of the composite sheet may be raised (column 10, lines 24-40).

Regarding claim 4, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be constructed of between 200 and 10,000 ultra fine fibers (column 8, lines 40-57).

Regarding claim 5, Mizoguchi discloses that the total denier of the yarn constituting the woven or knitted fabric layer may be 10 to 70 denier (column 8, lines 40-43).

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures).

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Regarding claim 10, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a polyester based resin or nylon based resin (column 7, lines 36-60).

Regarding claim 11, Mizoguchi discloses that the weight of the woven or knitted fabric layer may be 10 to 100 g/m² (column 8, lines 11-27).

Regarding claim 15, Mizoguchi discloses that the proportion by weight of the woven or knitted fabric to the nonwoven fabric may be 60% or less (column 9, lines 28-40).

Regarding claims 17 and 18, considering that the composite sheet disclosed by Mizoguchi is identical to the claimed composite in structure, fiber denier, fiber material, and resin material, it appears that the composite would inherently possess the claimed properties.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claim 19, Mizoguchi discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (paragraph bridging columns 6 and 7).

Claim Rejections - 35 USC § 103

6. Claims 6-9, 12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,145,468 to Mizoguchi as applied to claims 2, 4-5, 9-11, 13-15 and 17-19 above, and further in view of USPN 5,256,429 to Honda et al. (hereinafter referred to as Honda).

Regarding claims 6-8, Mizoguchi does not appear to specifically mention using twist yarns for the woven or knitted fabric layer, but Honda discloses that it is known in the artificial leather composite art to use twisted yarn (700 to 4,000 twists/m) in a woven or knitted fabric layer to prevent the yarns from being cut when entangled with nonwoven layer yarns (see entire document including column 2, lines 17-39). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric layer fibers in twisted form, as taught by Honda, because the woven or knitted fabric layer yarns would resist being cut when entangled with the nonwoven layer yarns.

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures), but Mizoguchi does not appear to mention staple spun yarn. Honda discloses that it is known in the artificial leather composite art to use staple spun yarn in the woven or knitted fabric layer (see entire document including column 2, lines 40-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric yarns in any suitable form, such as staple spun yarns or continuous filament yarns, because it is within the general skill of a worker in the art to select a known filament on the basis of its suitability and desired characteristics.

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Regarding claim 12, Mizoguchi appears to be silent with regards to specific warp and weft yarns/inch densities, therefore, it would have been necessary and thus obvious to look to the prior art for conventional densities. Honda provides this conventional teaching showing that it is known in the art to use warp and weft densities of more than 60yarns/inch (column 3, lines 30-38). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the warp and weft yarn densities 60 or more motivated by the expectation of successfully practicing the invention of Mizoguchi.

Regarding claim 16, Mizoguchi appears to be silent with regards to the weight ratio of the ultra fine fibers to the resin, therefore, it would have been necessary and thus obvious to look to the prior art for conventional ratios. Honda provides this conventional teaching showing that it is known in the art to a binder in an amount of 7 to 50% based on the weight of the fibers in the product (column 5, lines 44-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a binder in an amount of 7 to 50% based on the weight of the fibers in the product, motivated by the expectation of successfully practicing the invention of Mizoguchi.

Regarding claims 17 and 18, considering that the composite sheet disclosed by the applied prior art is identical to the claimed composite in structure, fiber denier, fiber material, and resin material, it appears that the composite would inherently possess the claimed properties.

Regarding claim 18, Mizoguchi discloses that the ultra fine fibers on the surface of the composite sheet may be raised (column 10, lines 24-40).

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7. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,145,468 to Mizoguchi as applied to claims 2, 4-5, 9-11, 13-15 and 17-19 above, and further in view of USPN 6,780,469 to Iijima.

Regarding claims 6-8, Mizoguchi does not appear to specifically mention using twist yarns for the woven or knitted fabric layer, but Iijima discloses that it is known in the artificial leather composite art to use twisted yarn (500 to 4,500 twists/m) in a woven or knitted fabric layer to prevent the yarns from being cut when entangled with nonwoven layer yarns (see entire document including column 8, lines 48-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric layer fibers in twisted form, as taught by Iijima, because the woven or knitted fabric layer yarns would resist being cut when entangled with the nonwoven layer yarns.

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures), but Mizoguchi does not appear to mention staple spun yarn. Iijima discloses that it is known in the artificial leather composite art to use staple spun yarn in the woven or knitted fabric layer (see entire document including column 8, lines 38-41). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric yarns in any suitable form, such as staple spun yarns or continuous filament yarns, because it is within the general skill of a worker in the art to select a known filament on the basis of its suitability and desired characteristics.

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8. Claims 2, 4-5, 9-11, 13-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,145,468 to Mizoguchi in view of anyone of USPN 4,497,095 to Minemura et al. (hereinafter referred to as Minemura), USPN 4,146,663 to Ikeda et al. (hereinafter referred to as Ikeda), USPN 4,118,529 to Nakagawa et al. (hereinafter referred to as Nakagawa), or USPN 3,865,678 to Okamoto et al. (hereinafter referred to as Okamoto).

Regarding claims 2, 4-5, 9-11, 13-15 and 17-19, Mizoguchi discloses a composite sheet for artificial leather comprising: a non-woven fabric layer (1) made of ultra fine fibers; a woven or knitted fabric layer (2) constructed from a yarn made of ultra fine fibers having a fineness less than 3 denier; and polyurethane resin, wherein the ultra fine fibers of the non-woven fabric layer (1) and the ultra fine fibers of the woven or knitted fabric layer (2) are entangled with each other (see entire document including column 1, lines 6-13, column 2, lines 30-61, the paragraph bridging columns 6 and 7, column 8, lines 44-57, and column 10, lines 46-52).

In the event that it is shown that Mizoguchi does not teach the claimed woven or knitted fabric layer (2) denier with sufficient specificity, Minemura, Ikeda, Nakagawa, and Okamoto each discloses that it is known in the artificial leather art to use woven and/or knitted fabric fibers of between 0.01 to 0.3 denier (see entire documents including column 5, lines 52-55 of Minemura, column 8, lines 44-49 of Ikeda, column 2, lines 39-44 of Nakagawa, and column 2, lines 40-54 of Okamoto). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the denier of the ultra fine fibers of the woven or knitted fabric layer, such as to 0.01 to 0.3 denier, because it is understood by one of ordinary skill in the art that the denier determines properties such stiffness and softness and because it has been held

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that discovering an optimum value of a result effective variable involves only routine skill in the art.

Mizoguchi discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (paragraph bridging columns 6 and 7) while Minemura, Ikeda, Nakagawa, and Okamoto each disclose that the woven or knitted fabric layer (2) may be made of ultra fine fibers having a fineness of between 0.01 to 0.3 denier (see above). Therefore, the applied prior art teaches that the fineness of the ultra fine fibers of the woven or knitted fabric layer (2) may be not more than the fineness of the ultra fine fibers of the nonwoven fabric layer (1).

Regarding claims 2, 14 and 18, Mizoguchi discloses that the ultra fine fibers on the surface of the composite sheet may be raised (column 10, lines 24-40).

Regarding claim 4, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be constructed of between 200 and 10,000 ultra fine fibers (column 8, lines 40-57).

Regarding claim 5, Mizoguchi discloses that the total denier of the yarn constituting the woven or knitted fabric layer may be 10 to 70 denier (column 8, lines 40-43).

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures).

Regarding claim 10, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a polyester based resin or nylon based resin (column 7, lines 36-60).

Regarding claim 11, Mizoguchi discloses that the weight of the woven or knitted fabric layer may be 10 to 100 g/m² (column 8, lines 11-27).

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Regarding claim 15, Mizoguchi discloses that the proportion by weight of the woven or knitted fabric to the nonwoven fabric may be 60% or less (column 9, lines 28-40).

Regarding claims 17 and 18, considering that the composite sheet disclosed by Mizoguchi is identical to the claimed composite in structure, fiber denier, fiber material, and resin material, it appears that the composite would inherently possess the claimed properties.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claim 19, Mizoguchi discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (paragraph bridging columns 6 and 7).

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9. Claims 6-9, 12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,145,468 to Mizoguchi in view of anyone of USPN 4,497,095 to Minemura, USPN 4,146,663 to Ikeda, USPN 4,118,529 to Nakagawa, or USPN 3,865,678 to Okamoto as applied to claims 2, 4-5, 9-11, 13-15 and 17-19 above, and further in view of USPN 5,256,429 to Honda.

Regarding claims 6-8, Mizoguchi does not appear to specifically mention using twist yarns for the woven or knitted fabric layer, but Honda discloses that it is known in the artificial leather composite art to use twisted yarn (700 to 4,000 twists/m) in a woven or knitted fabric layer to prevent the yarns from being cut when entangled with nonwoven layer yarns (see entire document including column 2, lines 17-39). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric layer fibers in twisted form, as taught by Honda, because the woven or knitted fabric layer yarns would resist being cut when entangled with the nonwoven layer yarns.

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures), but Mizoguchi does not appear to mention staple spun yarn. Honda discloses that it is known in the artificial leather composite art to use staple spun yarn in the woven or knitted fabric layer (see entire document including column 2, lines 40-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric yarns in any suitable form, such as staple spun yarns or continuous filament yarns, because it is within the general skill of a worker in the art to select a known filament on the basis of its suitability and desired characteristics.

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Regarding claim 12, Mizoguchi appears to be silent with regards to specific warp and weft yarns/inch densities, therefore, it would have been necessary and thus obvious to look to the prior art for conventional densities. Honda provides this conventional teaching showing that it is known in the art to use warp and weft densities of more than 60yarns/inch (column 3, lines 30-38). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the warp and weft yarn densities 60 or more motivated by the expectation of successfully practicing the invention of Mizoguchi.

Regarding claim 16, Mizoguchi appears to be silent with regards to the weight ratio of the ultra fine fibers to the resin, therefore, it would have been necessary and thus obvious to look to the prior art for conventional ratios. Honda provides this conventional teaching showing that it is known in the art to a binder in an amount of 7 to 50% based on the weight of the fibers in the product (column 5, lines 44-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a binder in an amount of 7 to 50% based on the weight of the fibers in the product, motivated by the expectation of successfully practicing the invention of Mizoguchi.

Regarding claims 17 and 18, considering that the composite sheet disclosed by the applied prior art is identical to the claimed composite in structure, fiber denier, fiber material, and resin material, it appears that the composite would inherently possess the claimed properties.

Regarding claim 18, Mizoguchi discloses that the ultra fine fibers on the surface of the composite sheet may be raised (column 10, lines 24-40).

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10. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,145,468 to Mizoguchi in view of anyone of USPN 4,497,095 to Minemura, USPN 4,146,663 to Ikeda, USPN 4,118,529 to Nakagawa, or USPN 3,865,678 to Okamoto as applied to claims 2, 4-5, 9-11, 13-15 and 17-19 above, and further in view of USPN 6,780,469 to Iijima.

Regarding claims 6-8, Mizoguchi does not appear to specifically mention using twist yarns for the woven or knitted fabric layer, but Iijima discloses that it is known in the artificial leather composite art to use twisted yarn (500 to 4,500 twists/m) in a woven or knitted fabric layer to prevent the yarns from being cut when entangled with nonwoven layer yarns (see entire document including column 8, lines 48-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric layer fibers in twisted form, as taught by Iijima, because the woven or knitted fabric layer yarns would resist being cut when entangled with the nonwoven layer yarns.

Regarding claim 9, Mizoguchi discloses that the yarn constituting the woven or knitted fabric layer may be a continuous filament yarn (see Figures), but Mizoguchi does not appear to mention staple spun yarn. Iijima discloses that it is known in the artificial leather composite art to use staple spun yarn in the woven or knitted fabric layer (see entire document including column 8, lines 38-41). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the woven or knitted fabric yarns in any suitable form, such as staple spun yarns or continuous filament yarns, because it is within the general skill of a worker in the art to select a known filament on the basis of its suitability and desired characteristics.

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11. Claims 2 and 4-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,256,429 to Honda in view of anyone of USPN 4,497,095 to Minemura, USPN 4,146,663 to Ikeda, USPN 4,118,529 to Nakagawa, or USPN 3,865,678 to Okamoto.

Regarding claims 2 and 4-19, Honda discloses a composite sheet for artificial leather comprising: a non-woven fabric layer (1) made of ultra fine fibers; a woven or knitted fabric layer (2) constructed from a yarn; and polyurethane resin, wherein the ultra fine fibers of the non-woven fabric layer (1) and the fibers of the woven or knitted fabric layer (2) are entangled with each other (see entire document including column 1, lines 13-17 and 56-63, column 3, lines 52-62, column 4, lines 38-44, and column 5, lines 59-64).

Example 1 of Honda includes woven fibers of about 2 denier, but Honda does not appear to mention a specific fiber denier range for the fibers of the woven or knitted fabric layer. Minemura, Ikeda, Nakagawa, and Okamoto each discloses that it is known in the artificial leather art to use woven and/or knitted fabric fibers of between 0.01 to 0.3 denier (see entire documents including column 5, lines 52-55 of Minemura, column 8, lines 44-49 of Ikeda, column 2, lines 39-44 of Nakagawa, and column 2, lines 40-54 of Okamoto). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the denier of the ultra fine fibers of the woven or knitted fabric layer, such as to 0.01 to 0.3 denier, because it is understood by one of ordinary skill in the art that the denier determines properties such stiffness and softness and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Honda discloses that the non-woven fabric layer (1) may be made of ultra fine fibers

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having a fineness of between 0.01 to 0.3 denier (column 3, lines 52-62) while Minemura, Ikeda, Nakagawa, and Okamoto each disclose that the woven or knitted fabric layer (2) may be made of ultra fine fibers having a fineness of between 0.01 to 0.3 denier (see above). Therefore, the applied prior art teaches that the fineness of the ultra fine fibers of the woven or knitted fabric layer (2) may be not more than the fineness of the ultra fine fibers of the nonwoven fabric layer (1).

Regarding claims 2, 14 and 18, Honda discloses that the ultra fine fibers on the surface of the composite sheet may be raised (column 5, lines 59-64).

Regarding claims 4 and 5, Honda discloses that the yarn constituting the woven or knitted fabric layer may be constructed of between 200 and 10,000 ultra fine fibers because Honda discloses that the total thickness of the yarns may be 30 to 300 denier (column 3, lines 23-29).

Regarding claims 6-8, Honda discloses that the number of twists of the yarn constituting the woven or knitted fabric may be 700 to 4000 twists/yarn (column 2, lines 17-39).

Regarding claim 9, Honda discloses the yarn constituting the woven or knitted fabric layer may be continuous or staple spun yarn (column 2, lines 40-43).

Regarding claim 10, Honda discloses that the yarn constituting the woven or knitted fabric layer may be a polyester based resin or nylon based resin (column 3, lines 39-45).

Regarding claim 11, Honda discloses that the weight of the woven or knitted fabric layer may be 20 to 200 g/m² (column 2, lines 44-53).

Regarding claim 12, Honda discloses that the warp and weft densities of the woven or knitted fabric layer may be more than 60 yarns/inch (column 3, lines 30-38).

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Regarding claim 15, Honda discloses that the ratio of the woven or knitted fabric/nonwoven fabric may be less than 70/100, more preferably 10 to 50/100 (column 3, lines 46-51).

Regarding claim 16, Honda discloses that the amount of binder may be 7 to 50% based on the weight of the fibers in the product (column 5, lines 44-48).

Regarding claims 17 and 18, considering that the composite sheet disclosed by the applied art is identical to the claimed composite in structure, fiber denier, fiber material, and resin material, it appears that the composite would inherently possess the claimed properties.

Regarding claim 19, Honda discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of between 0.01 to 0.3 denier (column 3, lines 52-62).

Response to Arguments

12. Applicant's arguments filed 11/8/2006 have been fully considered but they are not persuasive.

The applicant asserts that Mizoguchi fails to teach or suggest the use of woven or knitted fabric layer (2) ultra fine fibers with a denier of 0.01 to 0.3, because Mizoguchi discloses that it is preferable that the fibers be formed having a denier of 0.5 to 3. The examiner respectfully disagrees. Mizoguchi discloses that said range is "preferable" but that the denier is only required to be less than 3. Considering that the current claims require ultra fine fibers of 0.1 to 0.3 denier (less than 3 denier), it appears that Mizoguchi teaches the claimed denier with sufficient specificity. In the event that it is shown that Mizoguchi does not teach the claimed

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denier with sufficient specificity, the following patents have been cited to further show it is known in the artificial leather art to use woven fabric fibers of 0.01 to 0.3 denier:

USPN 4,497,095 to Minemura, USPN 4,146,663 to Ikeda, USPN 4,118,529 to Nakagawa, and USPN 3,865,678 to Okamoto et al. (see entire document including column 2, lines 40-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the denier of the ultra fine fibers of the woven or knitted fabric layer, such as to 0.01 to 0.3 denier, as taught by each of Minemura, Ikeda, Nakagawa, and Okamoto, because it is understood by one of ordinary skill in the art that the denier determines properties such stiffness and softness and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

The applicant asserts that the applied prior art fails to teach or suggest that the fineness of the fibers of the woven or knitted fabric layer (2) are not more than the fineness of the fibers of the non woven fabric layer (1). The examiner respectfully disagrees. Mizoguchi discloses that the non-woven fabric layer (1) may be made of ultra fine fibers having a fineness of 0.01 to 0.3 denier (paragraph bridging columns 6 and 7) and that the woven or knitted fabric layer (2) may be made of ultra fine fibers having a fineness of less than 3 denier. Therefore, Mizoguchi appears to teach (with sufficient specificity) that the fineness of the ultra fine fibers of the woven or knitted fabric layer (2) may be not more than the fineness of the ultra fine fibers of the nonwoven fabric layer (1). In the event that it is shown that Mizoguchi does not teach the claimed limitation with sufficient specificity, Minemura, Ikeda, Nakagawa, and Okamoto each disclose that it is known in the art to use a woven or knitted fabric layer (2) made of ultra fine fibers having a fineness of between 0.01 to 0.3 denier (see above). Therefore, the applied prior

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art teaches that it would have been obvious to use woven or knitted ultra fine fibers with fineness not more than the fineness of the ultra fine fibers of the nonwoven fabric layer, because it is understood by one of ordinary skill in the art that the denier determines properties such stiffness and softness and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding Iijima, the applicant asserts that the relevance of the reference is not understood. The examiner contends that Iijima has been cited to disclose that it is known in the artificial leather composite art to use twisted yarn (500 to 4,500 twists/m) in a woven or knitted fabric layer to prevent the yarns from being cut when entangled with nonwoven layer yarns. Iijima has also been cited to disclose that it is known in the artificial leather composite art to use staple spun yarn in the woven or knitted fabric layer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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atp

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ANDREW PIZIALI
PRIMARY EXAMINER